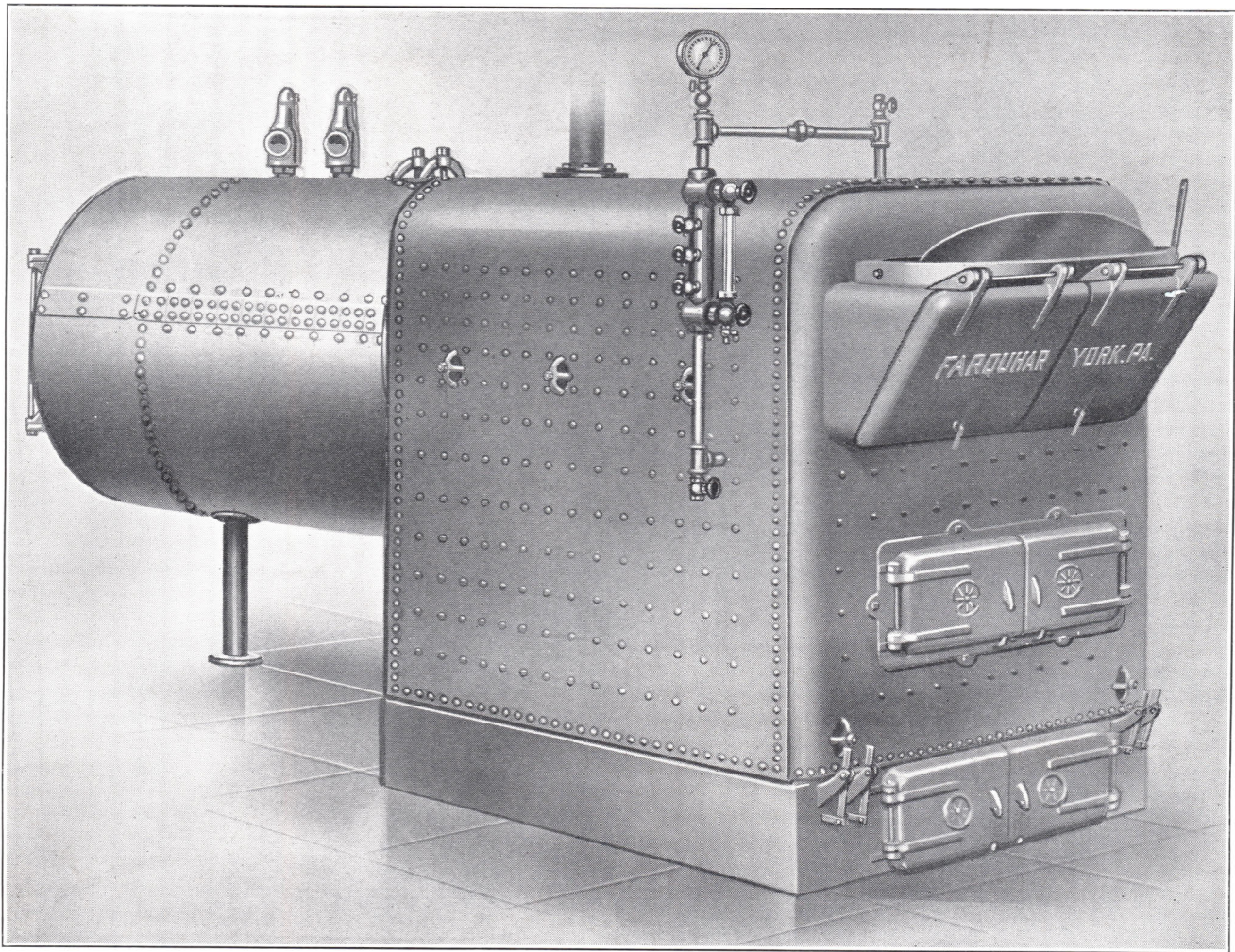


FARQUHAR

Fire Box Type—"R" Series

RETURN FLUE BOILER

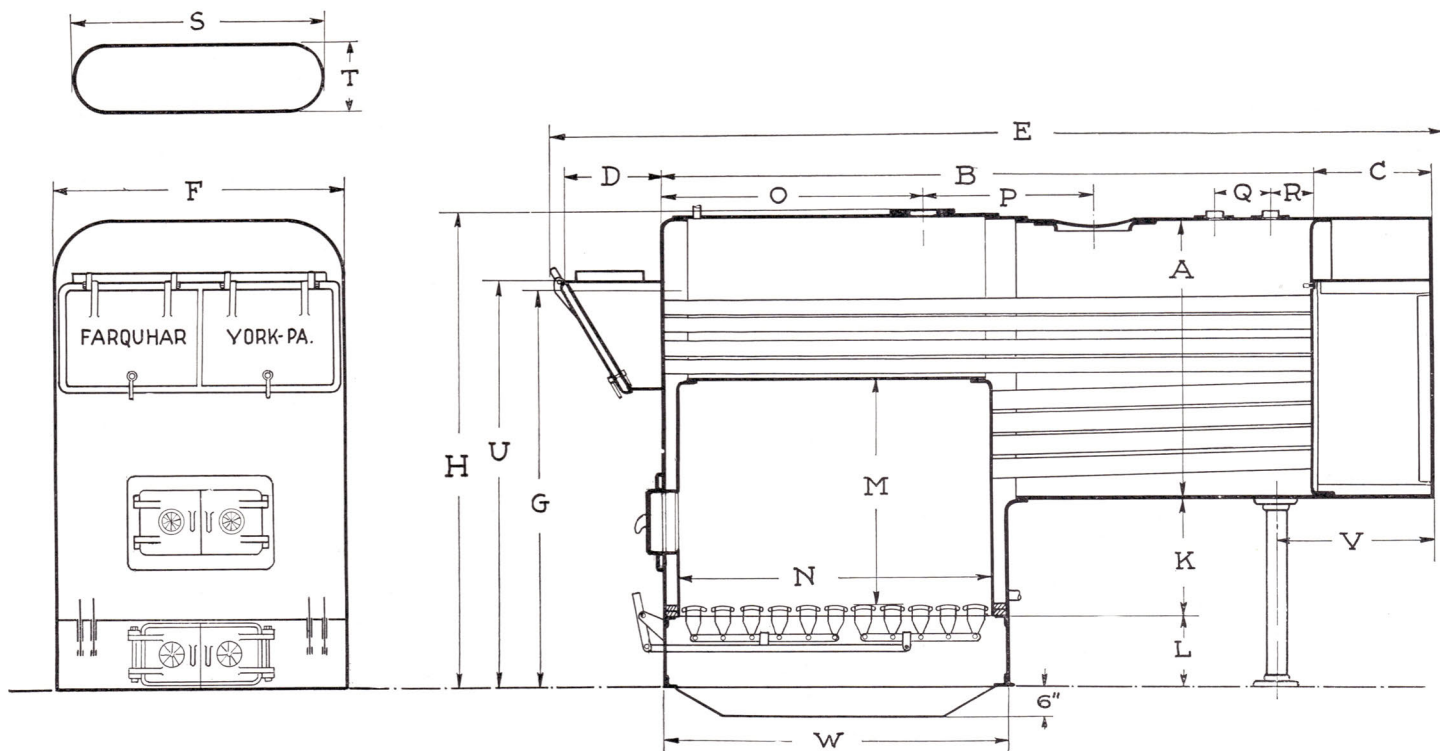
"The Boiler which Boldly Steps into the Lead"



A. B. FARQUHAR CO., LIMITED

YORK, PENNSYLVANIA

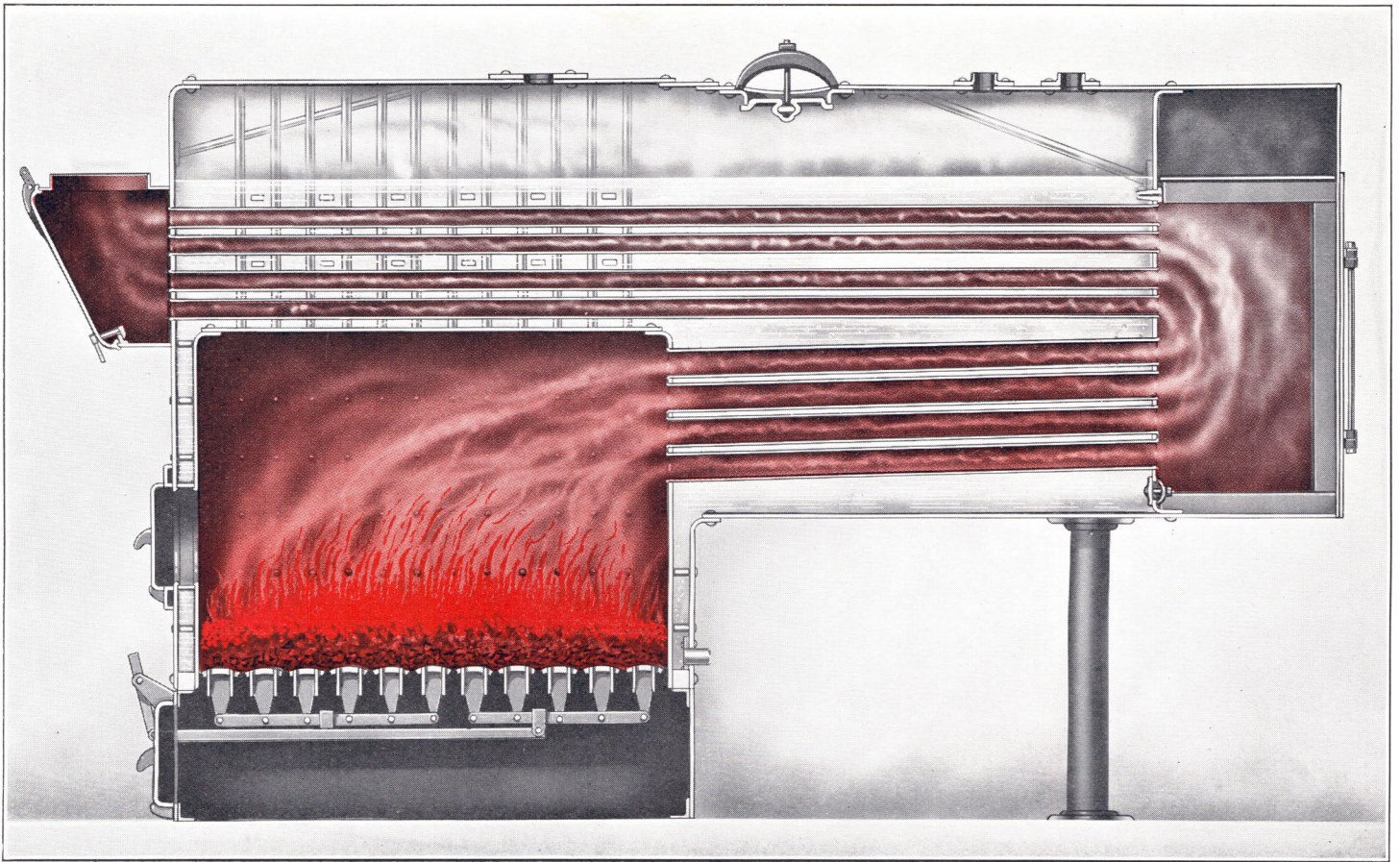
Export Office, York, Penna., U. S. A.



DIMENSIONS

FARQUHAR RETURN FLUE—FIRE BOX TYPE—"R" SERIES BOILER

BOILER NUMBER AND HORSE POWER	25	30	40	50	60	80	100
Heating Surface.....Sq. Ft.	252.5	301.9	400.4	503.3	603.7	801	1005
Number and Diameter—Upper Tubes.....	26-2 $\frac{1}{2}$ "	26-2 $\frac{1}{2}$ "	38-3"	38-3"	52-3"	52-3"	52-3"
Length of Upper Tubes.....In.	101 $\frac{1}{2}$	120 $\frac{1}{2}$	96 $\frac{1}{2}$	120 $\frac{1}{2}$	104 $\frac{1}{2}$	138 $\frac{1}{2}$	173 $\frac{1}{2}$
Number & Diameter—Lower Tubes.....	18-3"	18-3"	24-4"	24-4"	36-4"	36-4"	36-4"
Length of Lower Tubes.....In.	44	63	39	57	47	69	92
Grate Area.....Sq. Ft.	11.6	11.6	16.1	18	20.6	25.2	29.8
A—Diameter of Boiler.....In.	36	36	48	48	60	60	60
B—Length of Boiler.....In.	101 $\frac{1}{2}$	120 $\frac{1}{2}$	96 $\frac{1}{2}$	120 $\frac{1}{2}$	104 $\frac{1}{2}$	138 $\frac{1}{2}$	173 $\frac{1}{2}$
C—Depth—Rear Smoke Box.....In.	21	21	23	23	25 $\frac{1}{2}$	25 $\frac{1}{2}$	25 $\frac{1}{2}$
D—Depth—Front Smoke Box.....In.	15	15	16	16	21	21	21
E—Length Overall.....Ft.-In.	11-10 $\frac{1}{2}$	13-5 $\frac{1}{2}$	11-8 $\frac{1}{2}$	13-8 $\frac{1}{2}$	13-0	15-10	18-9
F—Width of Boiler.....Ft.-In.	3-2	3-2	4-2	4-2	5-2	5-2	5-2
G—Floor to Low Water Level.....In.	64 $\frac{1}{2}$	64 $\frac{1}{2}$	74 $\frac{1}{8}$	74 $\frac{1}{8}$	84	84	84
H—Floor to Steam Outlet.....In.	75 $\frac{3}{8}$	75 $\frac{3}{8}$	87 $\frac{3}{4}$	87 $\frac{3}{4}$	100 $\frac{3}{4}$	100 $\frac{3}{4}$	100 $\frac{3}{4}$
K—Bottom of Boiler to Shell.....In.	24	24	24	24	24	24	24
L—Height of Base.....In.	12	12	12	12	15	15	15
M—Grate to Steam Sheet.....In.	36 $\frac{3}{4}$	36 $\frac{3}{4}$	43 $\frac{1}{2}$	43 $\frac{1}{2}$	47 $\frac{1}{2}$	47 $\frac{1}{2}$	47 $\frac{1}{2}$
N—Length of Grate.....In.	54	54	54	60	54	66	78
O—Front to Steam Outlet.....In.	44 $\frac{3}{4}$	44 $\frac{3}{4}$	44 $\frac{3}{4}$	50 $\frac{1}{2}$	44 $\frac{3}{4}$	51 $\frac{1}{2}$	64
P—Steam Outlet to Manhole.....In.	12	12	36	36	35 $\frac{1}{4}$	37	40
Q—Safety Valve to Safety Valve.....In.	12	12	12	12	12	12	12
R—Rear to Safety Valve.....In.	12	12	12	12	12	12	12
S—Length of Smoke Stack Base.....In.	23	23	34	34	43	43	43
T—Width of Smoke Stack Base.....In.	10	10	11	11	15	15	15
U—Floor to Smoke Stack Base.....In.	66	66	77	77	86	86	86
V—Rear to Support.....In.	30	30	32	32	36	36	36
W—Length of Base.....In.	60 $\frac{3}{4}$	60 $\frac{3}{4}$	61	67	61	73	85
Diameter—Steam Connection.....In.	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3	3	3 $\frac{1}{2}$	4	5
Diameter and Number Safety Valves.....	2"-1	2"-1	2 $\frac{1}{2}$ "-1	2"-2	2"-2	2 $\frac{1}{2}$ "-2	3"-2
Diameter Blowoff.....In.	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2	2
Diameter of Stack.....In.	18	20	22	24	26	30	32
Height of Stack.....Ft.	40	40	40	40	50	50	50
Area for Boiler Covering.....Sq. Ft.	148	163	181	209	240	283	342
Shipping Weight without Grates or Base.....Lbs.	6900	7270	10530	11650	15575	17625	19875
Thickness of Shell.....In.	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Thickness of Wagon Top.....In.	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$
Thickness of Crown Sheet.....In.	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$
Thickness of Tube Heads.....In.	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$
Thickness of Firebox Heads.....In.	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$
Thickness of Throat Sheet.....In.	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$
Size of Fire Door Opening.....In.	12x18	12x18	12x24	12x24	12x24	12x24	12x24



FARQUHAR RETURN FLUE—FIRE BOX TYPE—"R" SERIES BOILER

THE "R" Series Boiler is a self-contained unit with all the advantages of a brick set return tubular boiler but with the added feature that it can be moved complete when desired.

FUEL—Can be successfully fired by hand with coal, by mechanical stokers or fuel oil.

BOILER—This boiler is built with a flat wagon top and cylindrical shell for 100-lbs. working pressure. Higher pressures up to 150-lbs. can be built as ordered.

DESIGN—Is safe and durable, occupies little space, is economical of fuel and is a rapid steamer. The heat in the furnace is utilized for heating water in the water walls and not for heating fire brick or other refractory material, and, therefore, more steam is made per pound of coal.

FLAT TOP—The flat crown sheet provides a rectangular fire box giving uniform combustion space over entire surface of grate; therefore, more efficient combustion and an even distribution of heat through the boiler.

FURNACE—Is large, providing the important feature of having plenty of height over the grates and is carefully proportioned to give the best condition for successful burning of the fuel; and with the arrangement of the tubes makes the Farquhar boiler very efficient and economical.

RETURN FLUE—The first pass of the heat is through the lower set of tubes to the refractory lined combustion chamber. The second pass is through the upper set of tubes to the stack, which is at the firing end of the boiler.

CLEANING—The facilities for cleaning the water space are ample, and it is far cheaper to keep the boiler clean from a maintenance standpoint than to replace burned-out refractory material.

HEATING— This boiler is designed for generating steam for power. It is almost universal in its application for factories, institutions, schools, hospitals, laundries, bottling plants, dry cleaners, florists; in fact, wherever power is needed, and on account of its economy in fuel and the small space required to install, is well adapted to steam, hot water and vapor heating.

CONSTRUCTION— Materials used in the construction of Farquhar boilers meet the requirements of the American Society of Mechanical Engineers, which specifies the kind of material and thickness of the plates necessary. These are minimum requirements and are exceeded where the efficiency requires greater strength.

The boiler is of riveted construction. The flat top of the boiler permits of better staying from both a mechanical and practical standpoint. Moreover, it permits a better and more efficient layout of tubes, in addition to the advantage of large steam space. Staying of all flat surfaces is done by means of direct stays, avoiding the massing of steel for the purpose of staying any part of the boiler. Crowfoot braces are used for the boiler heads.

TIGHT FITTING DOORS— Fire and ash doors are of ample size and the faces of all doors where necessary are ground to assure a tight fit when closed.

COMBUSTION CHAMBER— Protected throughout with refractory liner. The front smoke box is made of steel with cast iron doors which are fitted with a groove for receiving a square asbestos packing. Equipped with damper and designed for easy cleaning and removal of tubes.

A.S.M.E. CODE— Farquhar boilers are built, inspected and tested under the supervision of an authorized insurance company inspector and according to the A.S.M.E. Code requirements.

SHAKING GRATES— Adapted for bituminous coal, having 55% opening, $\frac{9}{16}$ " air space are always furnished unless otherwise specified. Air space can be less where fuel conditions demand a finer opening.

INSULATION— Best results can be obtained by covering the boiler with asbestos, and when boiler is so covered, you have an insulation equal to or better in efficiency than any other type on the market. We insulate boilers at extra price.

EQUIPMENT

BARE BOILER— Includes smoke box with damper and doors, fire doors, combustion chamber with doors and rear support.

FITTINGS— Include safety valve, steam gauge with syphon, water column with gauge cocks and water glass, blow-off valve and flue cleaner.

BASE— Includes steel base with ash doors prepared to receive lever brackets for shaking grates.

SHAKING GRATES— Include cast iron grates, grate rests and levers to operate, with lever brackets and supports for grate.

INJECTOR— Includes one check valve, three globe valves and piping.

STACK— As per specifications.

ASH PIT FRONT— Includes a steel front plate with ash doors prepared to receive lever brackets for shaking grate.

SILL BRACKETS— Include wooden sills with cast iron front and rear support brackets.

ASBESTOS COVERING— Includes $1\frac{1}{2}$ " thick magnesia blocks and a No. 22 gauge steel cover with brass bands.

A. B. FARQUHAR CO., Limited
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